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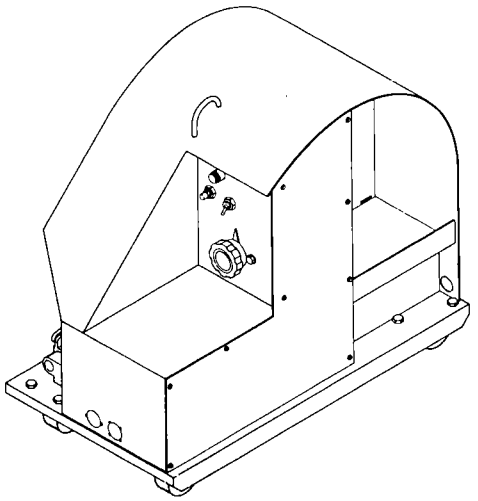

OWNER'S MANUAL

MILLER ELECTRIC MFG. CO.

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APPLETON, WI 54912 USA

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EFFECTIVE: JUNE 1, 1979

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SECTION 1 - SAFETY RULES FOR OPERATION OF ARC WELDING POWER SOURCE

1-1. INTRODUCTION

We learn by experience. Learning safety through personal experience, like a child touching a hot stove is harmful, wasteful, and unwise. Let the experience of others teach you.

Safe practices developed from experience in the use of welding and cutting are described in this manual. Research, development, and field experience have evolved reliable equipment and safe installation, operation, and servicing practices. Accidents occur when equipment is improperly used or maintained. The reason for the safe practices may not always be given. Some are based on common sense, others may require technical volumes to explain. It is wiser to follow the rules.

Read and understand these safe practices before attempting to install, operate, or service the equipment. Comply with these procedures as applicable to the particular equipment used and their instruction manuals, for personal safety and for the safety of others.

Failure to observe these safe practices may cause serious injury or death. When safety becomes a habit, the equipment can be used with confidence.

These safe practices are divided into two Sections: 1 - General Precautions, common to arc welding and cutting; and 2 - Arc Welding (and Cutting)(only).

Reference standards: Published Standards on safety are also available for additional and more complete procedures than those given in this manual. They are listed in the Standards Index in this manual. ANSI Z49.1 is the most complete.

The National Electrical Code, Occupational Safety and Health Administration, local industrial codes, and local inspection requirements also provide a basis for equipment installation, use, and service.

1-2. GENERAL PRECAUTIONS

A. Burn Prevention

Wear protective clothing - leather (or asbestos) gauntlet gloves, hat, and high safety-toe shoes. Button shirt collar and pocket flaps, and wear cuffless trousers to avoid entry of sparks and slag.

Wear helmet with safety goggles or glasses with side shields underneath, appropriate filter lenses or plates (protected by clear cover glass). This is a MUST for welding or cutting, (and chipping) to protect the eyes from radiant energy and flying metal. Replace cover glass when broken, pitted, or spattered. See 1-3A.2.

Avoid oily or greasy clothing. A spark may ignite them.

Hot metal such as electrode stubs and workpieces should never be handled without gloves.

Medical first aid and eye treatment. First aid facilities and a qualified first aid person should be available for each shift unless medical facilities are close by for immediate treatment of flash burns of the eyes and skin burns.

Ear plugs should be worn when working on overhead or in a confined space. A hard hat should be worn when others work overhead.

Flammable hair preparations should not be used by persons intending to weld or cut.

B. Toxic Fume Prevention

Adequate ventilation. Severe discomfort, illness or death can result from fumes, vapors, heat, or oxygen enrichment or depletion that welding (or cutting) may produce. Prevent them with adequate ventilation as described in ANSI Standard Z49.1 listed 1 in Standards index. NEVER ventilate with oxygen.

Lead -, cadmium -, zinc -, mercury -, and beryllium - bearing and similar materials, when welded (or cut) may produce harmful concentrations of toxic fumes. Adequate local exhaust ventilation must be used, or each person in the area as well as the operator must wear an air-supplied respirator. For beryllium, both must be used.

Metals coated with or containing materials that emit toxic fumes should not be heated unless coating is removed from the work surface, the area is well ventilated, or the operator wears an air-supplied respirator.

Work in a confined space only while it is being ventilated and, if necessary, while wearing an air-supplied respirator.

Gas leaks in a confined space should be avoided. Leaked gas in large quantities can change oxygen concentration dangerously. Do not bring gas cylinders into a confined space.

Leaving confined space, shut OFF gas supply at source to prevent possible accumulation of gases in the space if downstream valves have been accidently opened or left open. Check to be sure that the space is safe before re-entering it.

Vapors from chlorinated solvents can be decomposed by the heat of the arc (or flame) to form PHOSGENE, a highly toxic gas, and other lung and eye irritating products. The ultraviolet (radiant) energy of the arc can also decompose trichloroethylene and perchloroethylene vapors to form phosgene. DO NOT WELD or cut where solvent vapors can be drawn into the welding or cutting atmosphere or where the radiant energy can penetrate to atmospheres containing even minute amounts of trichloroethylene or perchloroethylene.

C. Fire and Explosion Prevention

Causes of fire and explosion are: combustibles reached by the arc, flame, flying sparks, hot slag or heated material; misuse of compressed gases and cylinders; and short circuits.

BE AWARE THAT flying sparks or falling slag can pass through cracks, along pipes, through windows or doors, and through wall or floor openings, out of sight of the goggled operator. Sparks and slag can fly 35 feet.

To prevent fires and explosion:

Keep equipment clean and operable, free of oil, grease, and (in electrical parts) of metallic particles that can cause short circuits.

If combustibles are in area, do NOT weld or cut. Move the work if practicable, to an area free of combustibles. Avoid paint spray rooms, dip tanks, storage areas, ventilators. If the work cannot be moved, move combustibles at least 35 feet away out of reach of sparks and heat; or protect against ignition with suitable and snug-fitting, fire-resistant covers or shields.

Walls touching combustibles on opposite sides should not be welded on (or cut). Walls, ceilings, and floor near work should be protected by heat-resistant covers or shields.

Fire watcher must be standing by with suitable fire extinguishing equipment during and for some time after welding or cutting if:

a. appreciable combustibles (including building construction) are within 35 feet
b. appreciable combustibles are further than 35 feet but can be ignited by sparks
c. openings (concealed or visible) in floors or walls within 35 feet may expose combustibles to sparks
d. combustibles adjacent to walls, ceilings, roofs, or metal partitions can be ignited by radiant or conducted heat.

Hot work permit should be obtained before operation to ensure supervisor's approval that adequate precautions have been taken.

After work is done, check that area is free of sparks, glowing embers, and flames.

An empty container that held combustibles, or that can produce flammable or toxic vapors when heated, must never be welded on or cut, unless container has first been cleaned as described in AWS Standard A6.0, listed 3 in Standards index.

This includes: a thorough steam or caustic cleaning (or a solvent or water washing, depending on the combustible's solubility) followed by purging and inerting with nitrogen or carbon dioxide, and using protective equipment as recommended in A6.0. Waterfilling just below working level may substitute for inerting.

A container with unknown contents should be cleaned (see paragraph above). Do NOT depend on sense of smell or sight to determine if it is safe to weld or cut.

Hollow castings or containers must be vented before welding or cutting. They can explode.

Explosive atmospheres. Never weld or cut where the air may contain flammable dust, gas, or liquid vapors (such as gasoline).

D. Compressed Gas Equipment

Standard precautions. Comply with precautions in this manual, and those detailed in CGA Standard P-1, PRECAUTIONS FOR SAFE HANDLING OF COMPRESSED GASES IN CYLINDERS, listed 6 in Standards index.

1. Pressure Regulators

Regulator relief valve is designed to protect only the regulator from overpressure; it is not intended to protect any downstream equipment. Provide such protection with one or more relief devices.

Never connect a regulator to a cylinder containing gas other than that for which the regulator was designed.

Remove faulty regulator from service immediately for repair (first close cylinder valve). The following symptoms indicate a faulty regulator:

Leaks - if gas leaks externally.
Excessive Creep - if delivery pressure continues to rise with downstream valve closed.
Faulty Gauge - if gauge pointer does not move off stop pin when pressurized, nor returns to stop pin after pressure release.

Repair. Do NOT attempt repair. Send faulty regulators for repair to manufacturer's designated repair center, where special techniques and tools are used by trained personnel.

2. Cylinders

Cylinders must be handled carefully to prevent leaks and damage to their walls, valves, or safety devices:

Avoid electrical circuit contact with cylinders including third rails, electrical wires, or welding circuits. They can produce short circuit arcs that may lead to a serious accident. (See 1-3C.)

ICC or DOT marking must be on each cylinder. It is an assurance of safety when the cylinder is properly handled.

Identifying gas content. Use only cylinders with name of gas marked on them; do not rely on color to identify gas content. Notify supplier if unmarked. NEVER DEFACE or alter name, number, or other markings on a cylinder. It is illegal and hazardous.

Empties: Keep valves closed, replace caps securely; mark MT; keep them separate from FULLS and return promptly.

Prohibited use. Never use a cylinder or its contents for other than its intended use, NEVER as a support or roller.

Locate or secure cylinders so they cannot be knocked over.

Passageways and work areas. Keep cylinders clear of areas where they may be struck.

Transporting cylinders. With a crane, use a secure support such as a platform or cradle. Do NOT lift cylinders off the ground by their valves or caps, or by chains, slings, or magnets.

Do NOT expose cylinders to excessive heat, sparks, slag, and flame, etc. that may cause rupture. Do not allow contents to exceed 130°F. Cool with water spray where such exposure exists.

Protect cylinders particularly valves from bumps, falls, falling objects, and weather. Replace caps securely when moving cylinders.

Stuck valve. Do NOT use a hammer or wrench to open a cylinder valve that can not be opened by hand. Notify your supplier.

Mixing gases. Never try to mix any gases in a cylinder.

Never refill any cylinder.

Cylinder fittings should never be modified or exchanged.

3. Hose

Prohibited use. Never use hose other than that designed for the specified gas. A general hose identification rule is: red for fuel gas, green for oxygen, and black for inert gases.

Use ferrules or clamps designed for the hose (not ordinary wire or other substitute) as a binding to connect hoses to fittings.

No copper tubing splices. Use only standard brass fittings to splice hose.

Avoid long runs to prevent kinks and abuse. Suspend hose off ground to keep it from being run over, stepped on, or otherwise damaged.

Coil excess hose to prevent kinks and tangles.

Protect hose from damage by sharp edges, and by sparks, slag, and open flame.

Examine hose regularly for leaks, wear, and loose connections. Immerse pressured hose in water; bubbles indicate leaks.

Repair leaky or worn hose by cutting area out and splicing (1-2D3). Do NOT use tape.

4. Proper Connections

Clean cylinder valve outlet of impurities that may clog orifices and damage seats before connecting regulator. Except for hydrogen, crack valve momentarily, pointing outlet away from people and sources of ignition. Wipe with a clean lintless cloth.

Match regulator to cylinder. Before connecting, check that the regulator label and cylinder marking agree, and that the regulator inlet and cylinder outlet match. NEVER CONNECT a regulator designed for a particular gas or gases to a cylinder containing any other gas.

Tighten connections. When assembling threaded connections, clean and smooth seats where necessary. Tighten. If connection leaks, disassemble, clean, and retighten using properly fitting wrench.

Adapters. Use a CGA adapter (available from your supplier) between cylinder and regulator, if one is required. Use two wrenches to tighten adapter marked RIGHT and LEFT HAND threads.

Regulator outlet (or hose) connections may be identified by right hand threads for oxygen and left hand threads (with grooved hex on nut or shank) for fuel gas.

5. Pressurizing Steps:

Drain regulator of residual gas through suitable vent before opening cylinder (or manifold valve) by turning adjusting screw in (clockwise). Draining prevents excessive compression heat at high pressure seat by allowing seat to open on pressurization. Leave adjusting screw engaged slightly on single-stage regulators.

Stand to side of regulator while opening cylinder valve.

Open cylinder valve slowly so that regulator pressure increases slowly. When gauge is pressurized (gauge reaches regulator maximum) leave cylinder valve in following position: For oxygen, and inert gases, open fully to seal stem against possible leak. For fuel gas, open to less than one turn to permit quick emergency shutoff.

Use pressure charts (available from your supplier) for safe and efficient, recommended pressure settings on regulators.

Check for leaks on first pressurization and regularly thereafter. Brush with soap solution (capful of Ivory Liquid* or equivalent per gallon of water). Bubbles indicate leak. Clean off soapy water after test; dried soap is combustible.

E. User Responsibilities

Remove leaky or defective equipment from service immediately for repair. See User Responsibility statement in equipment manual.

F. Leaving Equipment Unattended

Close gas supply at source and drain gas.

G. Rope Staging-Support

Rope staging-support should not be used for welding or cutting operation; rope may burn.

1-3. ARC WELDING

Comply with precautions in 1-1, 1-2, and this section. Arc Welding, properly done, is a safe process, but a careless operator invites trouble. The equipment carries high currents at significant voltages. The arc is very bright and hot. Sparks fly, fumes rise, ultraviolet and infrared energy radiates, weldments are hot, and compressed gases may be used. The wise operator avoids unnecessary risks and protects himself and others from accidents. Precautions are described here and in standards referenced in index.

A. Burn Protection

Comply with precautions in 1-2.

The welding arc is intense and visibly bright. Its radiation can damage eyes, penetrate lightweight clothing, reflect from light-colored surfaces, and burn the skin and eyes. Skin burns resemble acute sunburn, those from gas-shielded arcs are more severe and painful. DON'T GET BURNED; COMPLY WITH PRECAUTIONS.

1. Protective Clothing

Wear long-sleeve clothing (particularly for gas-shielded arc) in addition to gloves, hat, and shoes (1-2A). As necessary, use additional protective clothing such as leather jacket or sleeves, flame-proof apron, and fire-resistant leggings. Avoid outergarments of untreated cotton.

Bare skin protection. Wear dark, substantial clothing. Button collar to protect chest and neck and button pockets to prevent entry of sparks.

2. Eye and Head Protection

Protect eyes from exposure to arc. NEVER look at an electric arc without protection.

Welding helmet or shield containing a filter plate shade no. 12 or denser must be used when welding. Place over face before striking arc.

Protect filter plate with a clear cover plate.

Cracked or broken helmet or shield should NOT be worn; radiation can pass through to cause burns.

Cracked, broken, or loose filter plates must be replaced IMMEDIATELY. Replace clear cover plate when broken, pitted, or spattered.

Flash goggles with side shields MUST be worn under the helmet to give some protection to the eyes should the helmet not be lowered over the face before an arc is struck. Looking at an arc momentarily with unprotected eyes (particularly a high intensity gas-shielded arc) can cause a retinal burn that may leave a permanent dark area in the field of vision.

3. Protection of Nearby Personnel

Enclosed welding area. For production welding, a separate room or enclosed bay is best. In open areas, surround the operation with low-reflective, non-combustible screens or panels. Allow for free air circulation, particularly at floor level.

Viewing the weld. Provide face shields for all persons who will be looking directly at the weld.

Others working in area. See that all persons are wearing flash goggles.

Before starting to weld, make sure that screen flaps or bay doors are closed.

B. Toxic Fume Prevention

Comply with precautions in 1-2B.

Generator engine exhaust must be vented to the outside air. Carbon monoxide can kill.

C. Fire and Explosion Prevention

Comply with precautions in 1-2C.

Equipment's rated capacity. Do not overload arc welding equipment. It may overheat cables and cause a fire.

Loose cable connections may overheat or flash and cause a fire.

Never strike an arc on a cylinder or other pressure vessel. It creates a brittle area that can cause a violent rupture or lead to such a rupture later under rough handling.

D. Compressed Gas Equipment

Comply with precautions in 1-2D.

E. Shock Prevention

Exposed hot conductors or other bare metal in the welding circuit, or in ungrounded, electrically-HOT equipment can fatally shock a person whose body becomes a conductor. DO NOT STAND, SIT, LIE, LEAN ON, OR TOUCH a wet surface when welding, without suitable protection.

To protect against shock:

Keep body and clothing dry. Never work in damp area without adequate insulation against electrical shock. Stay on a dry duckboard, or rubber mat when dampness or sweat can not be avoided. Sweat, sea water, or moisture between body and an electrically HOT part - or grounded metal - reduces the body surface electrical resistance, enabling dangerous and possibly lethal currents to flow through the body.

1. Grounding the Equipment

When installing, connect the frames of each unit such as welding power source, control, work table, and water circulator to the building ground. Conductors must be adequate to carry ground currents safely. Equipment made electrically HOT by stray current may shock, possibly fatally. Do NOT GROUND to electrical conduit, or to a pipe carrying ANY gas or a flammable liquid such as oil or fuel.

Three-phase connection. Check phase requirement of equipment before installing. If only 3-phase power is available, connect single-phase equipment to only two wires of the 3-phase line. Do NOT connect the equipment ground lead to the third (live) wire, or the equipment will become electrically HOT - a dangerous condition that can shock, possibly fatally.

Before welding, check ground for continuity. Be sure conductors are touching bare metal of equipment frames at connections.

If a line cord with a ground lead is provided with the equipment for connection to a switchbox, connect the ground lead to the grounded switchbox. If a three-prong plug is added for connection to a grounded mating receptacle, the ground lead must be connected to the ground prong only. If the line cord comes with a three-prong plug, connect to a grounded mating receptacle. Never remove the ground prong from a plug, or use a plug with a broken off ground prong.

*Trademark of Proctor & Gamble.

2. Electrode Holders

Fully insulated electrode holders should be used. Do NOT use holders with protruding screws.

3. Connectors

Fully insulated lock-type connectors should be used to join welding cable lengths.

4. Cables

Frequently inspect cables for wear, cracks and damage. IMMEDIATELY REPLACE those with excessively worn or damaged insulation to avoid possibly - lethal shock from bared cable. Cables with damaged areas may be taped to give resistance equivalent to original cable.

Keep cable dry, free of oil and grease, and protected from hot metal and sparks.

5. Terminals And Other Exposed Parts

Terminals and other exposed parts of electrical units should have insulating covers secured before operation.

6. Electrode Wire

Electrode wire becomes electrically HOT when the power switch of gas metal-arc welding equipment is ON and welding gun trigger is pressed. Keep hands and body clear of wire and other HOT parts.

7. Safety Devices

Safety devices such as interlocks and circuit breakers should not be disconnected or shunted out.

Before installation, inspection, or service, of equipment, shut OFF all power and remove line fuses (or lock or red-tag switches) to prevent accidental turning ON of power. Disconnect all cables from welding power source, and pull all 115 volts line-cord plugs.

Do not open power circuit or change polarity while welding. If, in an emergency, it must be disconnected, guard against shock burns, or flash from switch arcing.

Leaving equipment unattended. Always shut OFF and disconnect all power to equipment.

Power disconnect switch must be available near the welding power source.

1-4. STANDARDS BOOKLET INDEX

For more information, refer to the following standards or their latest revisions and comply as applicable:

1. ANSI Standard Z49.1, SAFETY IN WELDING AND CUTTING obtainable from the American Welding Society, 2501 NW 7th St., Miami, Fla. 33125.

2. ANSI Standard Z87.1, SAFE PRACTICE FOR OCCUPATION AND EDUCATIONAL EYE AND FACE PROTECTION, obtainable from American National Standards Institute, 1430 Broadway, New York, N.Y. 10018.

3. American Welding Society Standard A6.0, WELDING AND CUTTING CONTAINERS WHICH HAVE HELD COMBUSTIBLES, obtainable same as item 1.

4. NFPA Standard 51, OXYGEN-FUEL GAS SYSTEMS FOR WELDING AND CUTTING, obtainable from the National Fire Protection Association, 470 Atlantic Avenue, Boston, Mass. 02210.

5. NFPA Standard 51B, CUTTING AND WELDING PROCESSES, obtainable same as item 4.

6. CGA Pamphlet P-1. SAFE HANDLING OF COMPRESSED GASES IN CYLINDERS, obtainable from the Compressed Gas Association, 500 Fifth Avenue, New York, N. Y. 10036.

7. OSHA Standard 29 CFR, Part 1910, Subpart Q, WELDING, CUTTING AND BRAZING.

8. Code for Safety in Welding and Cutting, CSA Standard W117.2.

SECTION 2 - INTRODUCTION

Electrode Wire Diameter Capacity	Electrode Wire Feed Speed	Overall Dimensions (Inches)	Weight (Pounds)	
			Net	Ship
1/16"-1/8"	Dependent On Arc Voltage	Height - 25 Width - 16-3/4 Length - 28-1/2	103	108

Figure 2-1. Specifications

2 - 1. GENERAL - This manual has been prepared especially for use in familiarizing personnel with the design, installation, operation, maintenance, and troubleshooting of this equipment. All information presented herein should be given careful consideration to assure optimum performance of this equipment.

2 - 2. RECEIVING-HANDLING - Prior to installing this equipment, clean all packing material from around the unit and carefully inspect for any damage that may have occurred during shipment. Any claims for loss or damage that may have occurred in transit must be filed by the purchaser with the carrier. A copy of the bill of lading and freight bill will be furnished by the carrier on request if occasion to file claim arises.

When requesting information concerning this equipment, it is essential that Model Description and Serial Number of the equipment be supplied.

2 - 3. DESCRIPTION - This unit is a heavy-duty wire feeder designed to operate from the arc voltage of a constant current welding power source. It is designed for use primarily with flux-cored wires or self-shielding wires.

2 - 4. SAFETY - Before the equipment is put into operation, the safety section at the front of this manual should be read completely. This will help avoid possible injury due to misuse or improper welding applications.

The following definitions apply to CAUTION, IMPORTANT, and NOTE blocks found throughout this manual:

CAUTION : *Under this heading, installation, operating, and maintenance procedures or practices will be found that if not carefully followed may create a hazard to personnel.*

IMPORTANT : *Under this heading, installation, operating, and maintenance procedures or practices will be found that if not carefully followed may result in damage to equipment.*

NOTE : *Under this heading, explanatory statements will be found that need special emphasis to obtain the most efficient operation of the equipment.*

SECTION 3 - INSTALLATION

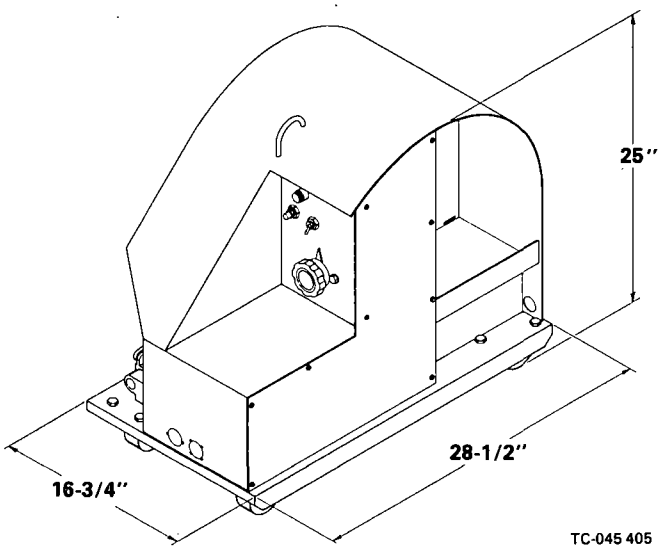


Figure 3-1. Dimensional Drawing

3 - 1. LOCATION - A proper installation site should be selected for the control/feeder if the unit is to provide dependable service. Lead lengths must be considered when installing the unit. It is recommended that the unit be located close to the work area for ease in connecting the control/feeder work clamp. Suitable space should be maintained around the unit for making necessary connections and for maintenance functions.

3 - 2. DRIVE MOTOR - The drive motor is provided with a gear case vent plug which must be removed prior to operation of the control/feeder. Remove the side panel of the unit to gain access to the motor. A long-nose pliers should be used to remove the plug from the top of the motor gear case.

IMPORTANT : *Damage to the motor may result if the vent plug is not removed prior to operation.*

3 - 3. WELD CABLE CONNECTIONS - A weld cable terminal is provided inside the wire reel shroud of the control/feeder for connecting the weld cable from the welding power source.

If DC Straight Polarity is used, the cable from the welding power source Negative output terminal is connected to the control/feeder.

If DC Reverse Polarity is used, the cable from the welding power source Positive output terminal is connected to the control/feeder.

NOTE: *Ensure that the POLARITY switch on the control/feeder corresponds with the weld cable connections. If the switch is in the wrong position, the electrode wire will retract into the gun when an arc is struck.*

IMPORTANT: *Ensure that the weld cable terminal is kept clean at all times. Also ensure that the nut on this terminal is secure. If either one of the above conditions is not met, erratic weld current and wire feed could result.*

3 - 4. SHIELDING GAS CONNECTIONS (Optional) - Route a gas hose from the gas supply to the gas fitting on the right side of the control. This fitting has right-hand threads.

3 - 5. 115 VOLTS AC CONNECTIONS (Models With Optional Shielding Gas Capability) - The gas valve in this control/feeder requires 115 vac to function. Connect the power cord from the control/feeder to a 115 vac power supply when use of the gas valve is desired.

3 - 6. DRIVE ROLL AND WIRE GUIDE INSTALLATION (Figure 3-2) - Upon initial installation, or as a result of changes in wire size and type, it is necessary to install the required drive rolls and wire guides.

NOTE: *Base selection of drive rolls upon the following recommended usages.*
1. U-Groove rolls for soft and soft shelled cored wires.
2. U-Cog rolls for extremely soft shelled wires (usually hard surfacing types).
3. Split V-Knurled rolls for hard shelled cored wires (self-shielding and CO_2 shielded types).
4. Drive roll types may be mixed to suit particular requirements (example: V-knurled roll in combination with U-groove).

Having selected the appropriate drive rolls and wire guides, proceed to the following installation instructions:

A. Drive Roll Installation (Figures 3-2 & 3-3)

1. Loosen pressure adjustment wing nut (item 2, Figure 3-2) and pivot it free of the cover.

2. Pivot gear cover (3) away to expose pressure gear.

3. Loosen and remove the three securing screws (10 & 15) on each gear (8 & 13).

4. For one piece drive rolls (9 & 14): slide a drive roll onto the drive gear (8) and pressure gear (13) with holes aligned and secure with screws (10 & 15).

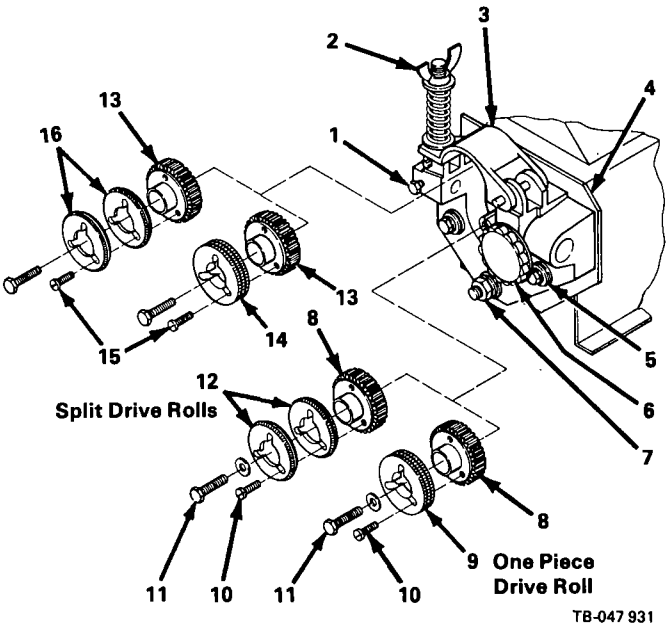


Figure 3-2. Drive Roll Installation

For split drive rolls (12 & 16): align holes on each pair of split drive rolls, insert a securing screw (10 & 15) and slide a drive roll onto the drive gear (8) and pressure gear (13) with screw in line with one of the threaded holes. Insert remaining screws (10 & 15) and tighten.

NOTE: *One-piece drive rolls (9 & 14) are of the double usage type. When the grooves become worn, reverse each drive roll, locating the unused groove in position to feed the wire.*

Split drive rolls (12 & 16) are of the double usage type. When the knurled groove of the drive rolls becomes worn, the split halves may be reversed so that the unused edges will now provide a new knurled groove.

NOTE: *To ensure proper gripping action of U-Cog drive rolls, both rolls should be installed showing slots on the side or both should show the side without slots. Also, it is necessary to line up the blunted teeth on the pressure gear roll directly over the spaces between the teeth on the drive gear roll.*

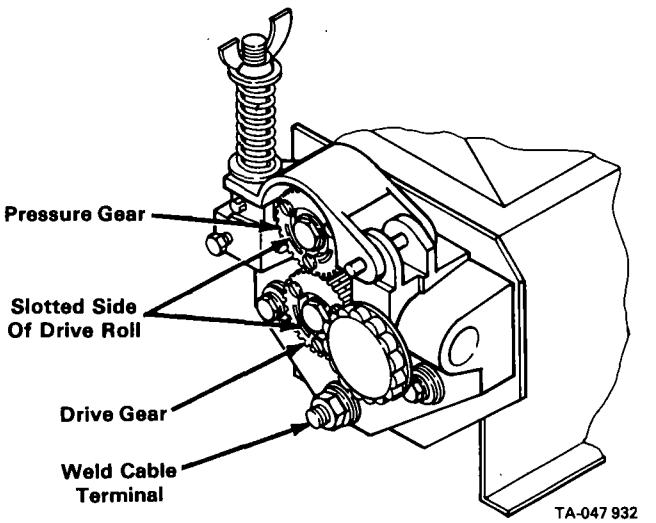


Figure 3-3. U-Cog Drive Roll Installation

B. Inlet Wire Guide (Figure 3-2)

1. Loosen the inlet wire guide securing screw (1).

NOTE: *Wire guides should be installed so that the tip of the guide is as close to the drive roll as possible without touching.*

2. Insert the inlet wire guide into drive assembly. Secure by tightening screw (1).

NOTE: *Behind the drive gear is a spring washer(s). To obtain proper alignment of the drive roll on the drive gear with the wire guides rotate the drive gear securing bolt (11) thereby moving the drive roll in or out to the desired position. The drive roll on the pressure gear will locate itself on the wire when the gear cover is replaced and the gears mesh together.*

The wire drive housing is made with mounting holes of sufficient clearance to provide adjustment of the wire guides up or down in relation to the drive rolls. This adjustment has been factory set, but if readjustment becomes necessary, loosen mounting bolts (item 5, Figure 3-2), nut (7) and bolt. Slide the wire drive housing upward or downward until the wire can be fed straight through the guides while seated in the drive roll groove. Tighten mounting bolts (5) bolt and nut (7).

3 - 7. GUN CONNECTIONS

A. Outlet Wire Guide (Figure 3-2)

1. Loosen gun/feeder connector securing knob (item 6, Figure 3-2).
2. Insert gun.

NOTE: *Wire guides should be installed so that the tip of the guide is as close to the drive roll as possible without touching.*

3. Tighten gun/feeder connector securing knob (6).

B. Gun Trigger (If Applicable)

The Trigger receptacle is provided for making gun trigger control connections. Align keyways and insert the plug from the gun into the Trigger receptacle and rotate the plug threaded collar clockwise.

C. Shielding Gas (If Applicable)

An integral gas input fitting is provided on the wire drive assembly for guns utilizing this type of connection. If the gun requires a separate shielding gas connection, connect the gas hose from the gun to the fitting on the front of the control. This fitting has right-hand threads.

D. Weld Cable (If Applicable) (Figure 3-2)

The weld cable terminal on the drive assembly provides a point for connecting the weld cable from the gun (if so equipped).

3 - 8. REINSTALLATION OF HUB AND REEL ASSEMBLY (Figure 3-4) - If it should become necessary to replace any part of the assembly, obtain part and proceed as follows to reinstall the assembly.

1. Slide the following items onto the spindle support shaft (15) in order given:
   A. Fiber Washer (14)
   B. Flat Washer (13)
   C. Hub (12)
   D. Wire Reel (11)
   E. Flat Washer (8)
   F. Fiber Washer (7)
   G. Keyed Washer (6)
   H. Spring (5)
   I. Flat Washer (4)
2. Rotate hex nut (3) onto support shaft (15). Hex nut (3) should be rotated only until a slight drag is felt while turning hub (12).
3. Depress the two spring loaded stops (1) on the retaining ring (2) and slide the retaining ring (2) into proper position on the hub (12). Release the two stops (1).
4. Proceed to install welding wire according to Section 3-9.

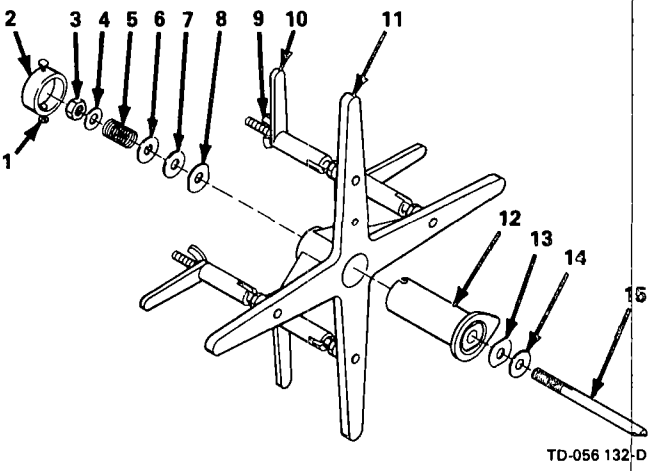


Figure 3-4. Hub And Reel Installation

3 - 9. INSTALLATION OF REEL-TYPE WIRE (Figure 3-4)

1. Loosen the four wing nuts (item 9, Figure 3-4) on the fingers (10) of the wire reel (11).
2. Pull the four fingers (10) out until they can be rotated toward the center of the reel (11).
3. Install the wire onto the reel (11) over the four fingers (10). Ensure that the wire feeds off the bottom of the reel (11). The reel (11) turns in a clockwise direction.
4. Rotate the four fingers (10) back to their proper position. Tighten the four wing nuts (9).

3-10. ADJUSTING HUB TENSION (Figure 3-4) - Check hub tension by slowly pulling wire toward the feed roll. The wire should unwind freely, but the hub tension should be sufficient to keep the wire taut and prevent backlash when the control/feeder is shut off. If adjustment is required, loosen or tighten the hex nut (item 3, Figure 3-4) on the end of the spindle support shaft (15) accordingly.

SECTION 4 - FUNCTION OF CONTROLS

4 - 1. INCH BUTTON (Figure 4-1) - The INCH push button is a monentary contact switch. When depressed it completes the circuit to the motor without having to strike an arc. This switch will permit inching of the wire at whatever setting the ARC CONTROL is at.

CAUTION *The welding wire and all metal parts in contact with it are energized while the welding power source is energized. Do not touch the welding wire or any metal part making contact with it.*

4 - 2. POLARITY SWITCH (Figure 4-1) - The POLARITY switch ensures that the wire drive motor feeds wire for both DC Straight and DC Reverse Polarity.

If DC Straight Polarity is used, the switch must be in the STRAIGHT (ELECTRODE NEGATIVE) position.

IF DC Reverse Polarity is used, the switch must be in the REVERSE (ELECTRODE POSITIVE) position.

NOTE *Ensure that the weld cable from the welding power source is connected to the appropriate output terminal for the polarity desired. If the weld cable connections and POLARITY switch do not correspond, the electrode wire will retract into the gun when an arc is struck.*

4 - 3. ARC CONTROL (Figure 4-1) - The ARC CONTROL provides a means of determining the rate at which welding wire will be fed into the weld. Rotating the ARC CONTROL in a clockwise direction will decrease the rate of wire feed and thereby provide a longer arc. Rotating the ARC CONTROL in a counterclockwise direction will increase the wire feed rate and thereby provide a shorter arc.

The ARC CONTROL is calibrated in percent and should not be misconstrued as an actual inch per minute reading.

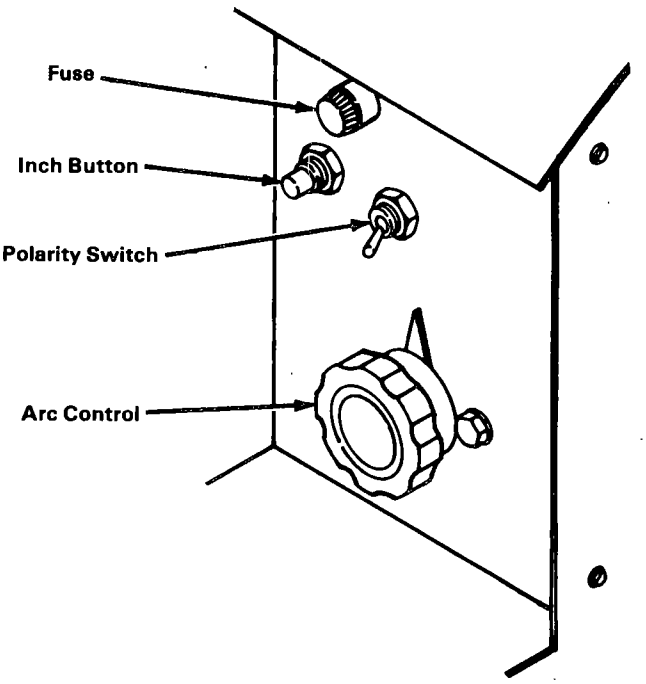


Figure 4-1. Control Components

NOTE *If the welding power source has a high or low arc voltage, the wire speeds may be correspondingly faster or slower.*

4 - 4. VOLTMETER (Optional) - The voltmeter will indicate load (or welding arc) voltage while welding. The voltmeter will indicate the voltage applied to the motor circuit when the INCH button is depressed.

4 - 5. REMOTE INCH SWITCH (Optional) - The Remote Inch switch provides the operator the ability to control inching of the welding wire from the work area. The Remote Inch switch functions in the same manner as the INCH switch on the unit. The INCH switch on the unit is also functional.

SECTION 5 - SEQUENCE OF OPERATION

5 - 1. WELDING WIRE THREADING

CAUTION *Prior to threading the welding wire through the gun, ensure that weld power is not available at the weld head.*

1. Install the wire as instructed in Section 3-9.
2. Cut off any portion of the free end of the wire which is not straight. Ensure that the cut end is free from rough surfaces to permit proper feeding.
3. Loosen the wing nut on the drive roll pressure adjustment, pivot the pressure adjustment free of the cover, and pivot the pressure gear assembly away until it is in an open position.
4. Feed the wire through the inlet wire guide, past the drive rolls, and on into the outlet wire guides. Feed approximately 4 inches of wire into the outlet wire guide.

NOTE *If when the gear cover is closed the U-Cog drive rolls are not aligned properly (see Section 3-6), pivot the gear cover away from the drive gear and rotate the pressure gear one tooth.*

5. Pivot the gear cover closed making sure the teeth on the pressure gear mesh with the teeth on the drive gear. The welding wire must also be in the grooves of the drive rolls.
6. Pivot the pressure adjustment wing nut until the washer on the pressure adjustment is seated on top of the gear cover.
7. Turn the pressure adjustment wing nut in a clockwise direction until the drive rolls are tight

against the welding wire. Do not overtighten. Further adjustment to attain desired clamping pressure can be made after the welding power source and the control/feeder are put into operation.

8. Draw the gun cable out straight.

9. Energize the welding power source.

CAUTION: *The welding wire and all metal parts in contact with it are energized while the welding power source is energized. Do not touch the welding wire or any metal part making contact with it.*

10. Depress the INCH switch. This will run the welding wire through the gun. Release the INCH switch when the welding wire extends approximately one inch out of the gun tip.

5 - 2. GAS METAL-ARC WELDING (GMAW)

1. Make all necessary connections as instructed in Section 3.

2. Place the POLARITY switch in the proper position.

3. Rotate the ARC CONTROL to the desired setting.

4. Turn on shielding gas at source, if applicable.

5. Energize the welding power source.

CAUTION: *Prior to welding, it is imperative that proper protective clothing (welding coat and gloves) and eye protection (glasses and welding helmet) be put on. Failure to comply may result in serious or permanent bodily damage.*

6. Close the trigger switch to initiate gas flow; if applicable.

7. Touch the welding wire to the workpiece to start wire feed.

   If wire slippage is noticed, tighten the drive roll pressure adjustment wing nut 1/2 turn clockwise. Repeat until slippage stops. Do not overtighten wing nut.

CAUTION: *The welding wire and all metal parts in contact with it are energized while welding. Do not touch the welding wire or any metal part making contact with it.*

8. To stop wire feed, pull the gun away from the workpiece.

5 - 3. SHUTTING DOWN

1. Break the arc.

2. Open the trigger switch to stop gas flow, if applicable.

3. Advance the wire so that there is a one inch stick out.

4. Shut the welding power source down.

5. Turn off shielding gas at the source.

CAUTION: *If welding is performed in a confined area, failure to turn off the shielding gas supply could result in a build-up of gas fumes, thereby endangering personnel reentering the welding area.*

SECTION 6 - MAINTENANCE

6 - 1. INSPECTION AND UPKEEP - Usage and shop conditions will determine the frequency and type of maintenance. Inspect equipment as follows:

1. Make sure welding power source is shut down.

2. Inspect gun for broken areas, cracks and loose parts: tighten, repair, and replace as required.

3. Carefully remove any weld spatter or foreign matter which may accumulate around the nozzle orifice. Use a hardwood stick, never a metal tool.

4. Repair or replace, as required, all hose and cable; give particular attention to frayed and cracked insulation and areas where it enters equipment.

5. Remove grease and grime from components; moisture from electrical parts and cable.

6. Blow out the gun wire guide liner with compressed air when changing wire. This will remove any metal chips and dirt that may have accumulated.

6 - 2. CLEANING OF DRIVE ROLLS - Occasionally it will become necessary to clean the wire groove on the drive rolls. This cleaning operation can be performed with a wire brush.

To clean the wire grooves it will be necessary to first remove the drive roll(s) (see Section 3-6 for removal and installation instructions).

NOTE: *Failure to properly maintain the drive rolls can result in a build-up of wire particles which will decrease the efficiency of the wire feeding operation.*

6 - 3. FUSE (Figure 4-1) - The control is protected from damage due to an internal short or excessive overload by fuse F1. Should F1 open, the control would be completely inoperative.

6 - 4. BRUSH INSPECTION & REPLACEMENT (Figures 6-1 & 6-2)

1. Shut down the welding power source.

CAUTION: *Placing the welding power source POWER switch in the OFF position does not remove power from all internal circuitry. Completely terminate all electrical power to the welding power source by employing "machinery lockout procedures" before attempting any inspection or work on the inside of the unit. If the welding power source is connected to a disconnect switch, padlock the switch in an open position. If connected to a fuse box, remove the fuses and padlock the cover in the closed position. If the unit is connected to a circuit breaker, or other disconnecting device without locking facilities, attach a red tag to the device to warn others that the circuit is being worked on.*

2. Open brush cap by sliding screwdriver under catch and lifting. Remove brush cap.

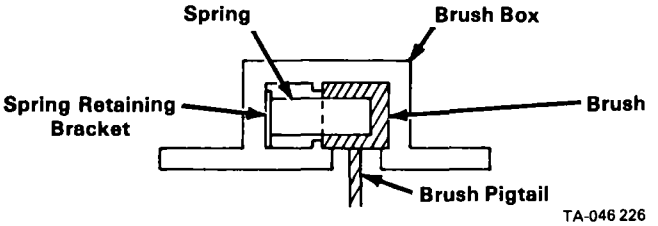


Figure 6-1. View Of Spring Assembly And Brush When Brush Cap Is Opened

3. Grasp spring retaining bracket with long-nose pliers.

4. Push spring retaining bracket in lightly and move towards brush. This should release the spring assembly and it can be removed.

5. Pull brush out using brush pigtail.

6. If replacement is necessary (brushes are less than 1/4" in length) disconnect the brush pigtail from the brush box tab and remove brush.

7. Connect new brush pigtail to brush box tab.

8. Route pigtail through slot in brush box. Ensure that the pigtail will not come into contact with a metal surface.

9. Insert brush into brush box. Ensure that the low end of the bevel on the top of the brush is towards the spring.

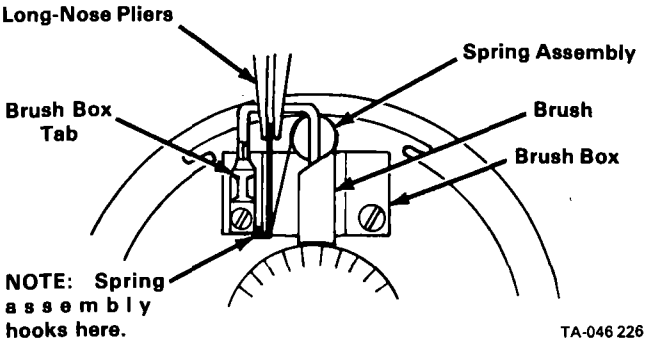


Figure 6-2. View Of Spring Assembly And Brush From Armature End Of Motor

10. Using long-nose pliers insert spring assembly beside brush sliding the spring retaining bracket along the brush box wall. The spring retaining bracket hooks on the brush box wall as illustrated in Figure 6-2.

11. If the spring retaining bracket is in place, it will be against the brush box wall when the pliers are released.

12. Ensure that the spring is in the proper position as illustrated in Figure 6-1.

13. Replace and latch the brush cap.

14. Reconnect power to all equipment and resume operation.

SECTION 7 - TROUBLESHOOTING

CAUTION: *Hazardous voltages are present on the internal circuitry of this unit as long as power is connected. Disconnect power before attempting any inspection or work on the inside of the unit. Troubleshooting of internal circuitry should be performed by qualified personnel only.*

The following chart is designed to diagnose and provide remedies for some of the troubles that may develop in this unit.

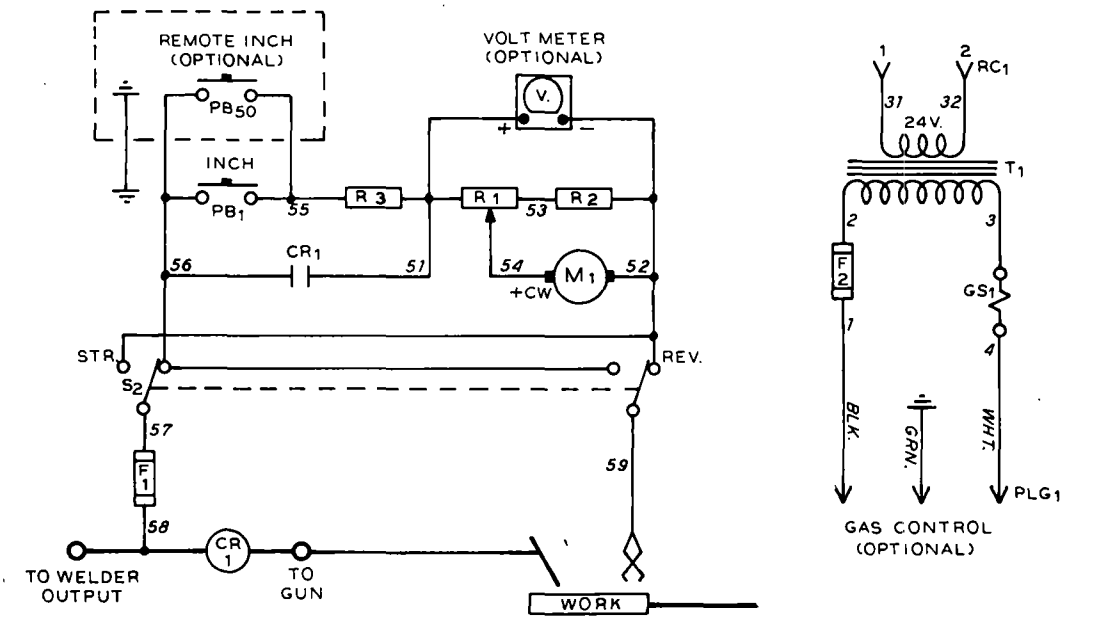
It is assumed that proper installation has been made, according to Section 3 of this manual, and that the unit has been functioning properly until this trouble developed.

Use this chart in conjunction with the circuit diagram while performing troubleshooting procedures. If the trouble is not remedied after performing these procedures, the nearest Factory Authorized Service Station should be contacted. In all cases of equipment malfunction, the manufacturer's recommendations should be strictly followed.

CAUTION: *Wire drive motor repairs should be limited to brush replacement (see Section 6-4). Attempting further repairs may result in personnal injury in addition to motor damage. Warranty is void if the motor is tampered with. For further repair and replacement information contact the Factory Service Department.*

TROUBLE	PROBABLE CAUSE	REMEDY
No weld output or erratic weld output.	Defect in welding power source.	See troubleshooting information in welding power source owner's manual.
	Loose connections.	Ensure all weld cable connections are clean and tight.
No wire feed.	Fuse F1 open.	*Replace fuse.
Erratic wire feed.	Loose connections.	Ensure all weld cable connections are clean and tight.
	ARC CONTROL connections loose.	Ensure all connections are clean and tight.
Motor runs too slowly during welding.	Control relay CR1 not functioning properly.	Watch relay as power is applied. Replace CR1 if necessary.
Wire retracts into gun when trying to strike an arc.	POLARITY switch in wrong position.	Ensure that weld output connections and the position of the POLARITY switch correspond.
Motor continues to run after arc is broken.	Control relay CR1 not functioning properly.	Watch relay as power is applied. Replace CR1 if necessary.

*If it becomes necessary to replace the fuse in the control/feeder, ensure that a fuse of the proper rating, type, and size is used.



Circuit Diagram No. A-046 727-B

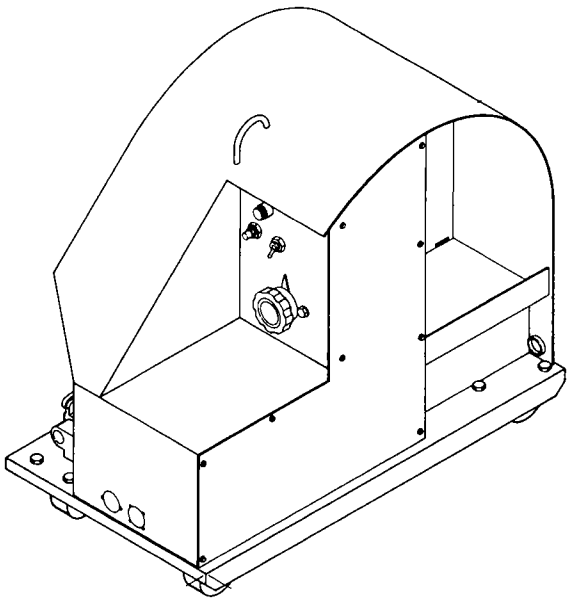
Figure 7-1. Circuit Diagram

February 1980 FORM: OM-1534

Effective With Serial No. JA381051

MODEL

S-42GL



PARTS LIST

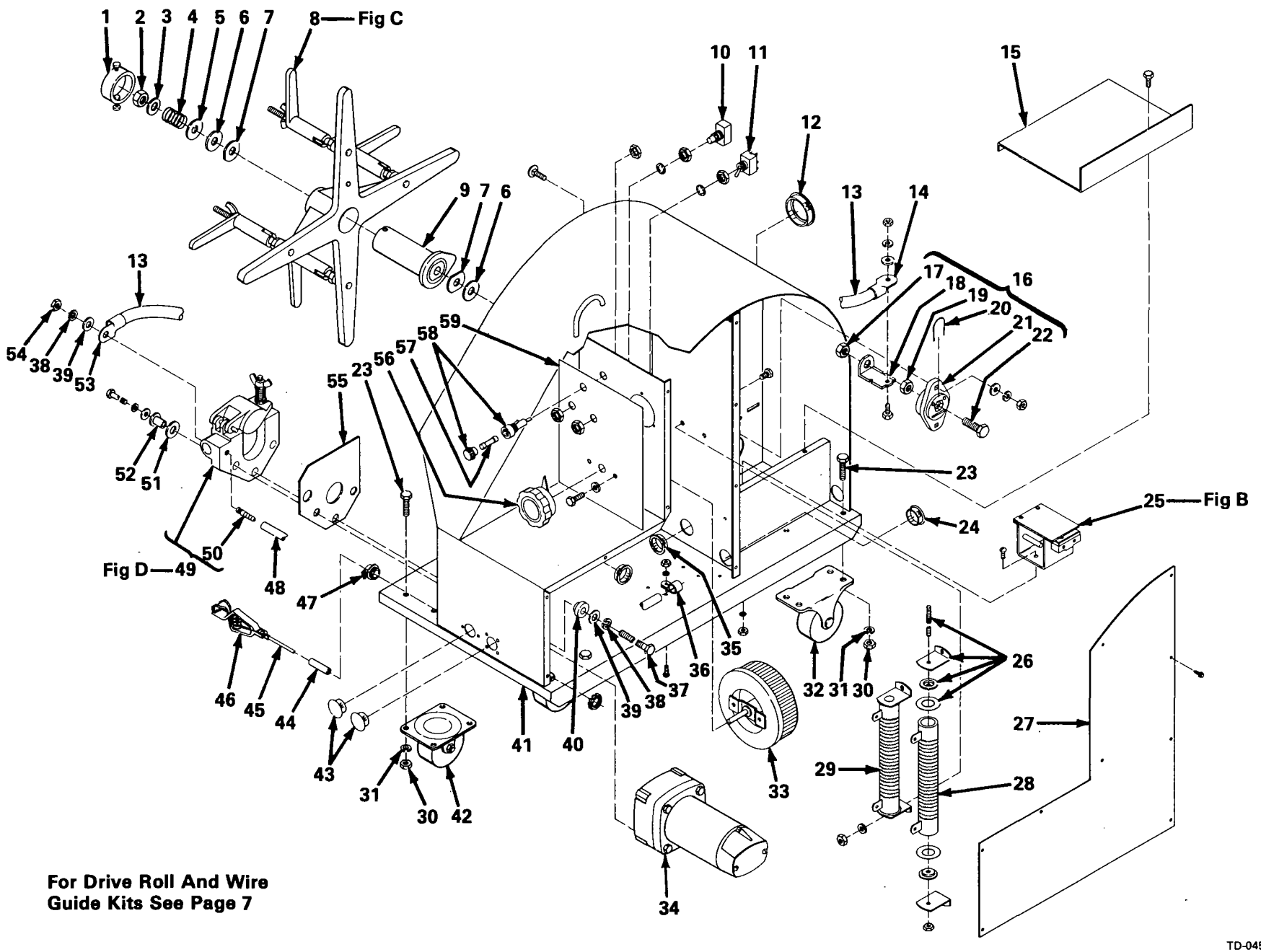


Figure A - Main Assembly

Item No.	Dia. Mkgs.	Part No.	Description	Quantity
Figure A			**Main Assembly**	
1		058 427	RING, retaining - spool	1
2		601 884	NUT, hex - jam 5/8-11	1
3		605 941	WASHER, flat 41/64 ID x 1 OD	1
4		010 233	SPRING, compression	1
5		057 971	WASHER, flat - keyed 1-1/2 dia	1
6		010 191	WASHER, fibre 5/8 ID x 1-1/2 OD x 1/8	2
7		058 628	WASHER, brake	2
8		056 416	REEL (Fig C Pg 5)	1
9		058 428	HUB, spool	1
10	PB1	047 681	SWITCH, magnetic - blowout	1
11	S2	011 611	SWITCH, toggle DPDT 15 amp 125 volts	1
12		004 214	BUSHING, snap 1-5/8 ID x 2	1
13		600 323	CABLE, weld - copper stranded No. 3/0 (order by ft)	4 ft
14		600 741	TERMINAL, ring - tongue 1/4 stud 3/0 wire	1
15		046 626	TRAY, tool	1
16		039 047	TERMINAL, power output - red (consisting of)	1
17		601 879	. NUT, hex - full 1/2-13	1
18		039 044	. BUS BAR	1
19		601 880	. NUT, hex - jam 1/2-13	1
20		053 032	. CLIP, spring - bus bar	1
21		039 049	. TERMINAL BOARD	1
22		601 976	. SCREW, cap - hex hd 1/2-13 x 1-1/2	1
23		601 944	SCREW, cap - hex hd 5/16-18 x 3/4	10
24		047 838	BLANK, snap - in 1.000 hole	1
25		047 758	SWITCH, magnetic - blowout (Fig B Pg 4)	1
26		+046 893	HARDWARE, mounting - resistor	1
27		047 917	PANEL, side	1
28	R2	046 894	RESISTOR, WW fixed 400 watt 4 ohm	1
29	R3	073 336	RESISTOR, WW fixed 300 watt 8 ohm	1
30		604 537	NUT, hex - full 5/16-18	10
31		602 211	WASHER, lock - split 5/16	10
32		073 311	CASTER, rubber - stationary 3 in	2
33	R1	046 835	RHEOSTAT, WW 300 watt 4 ohm	1
34	M1	048 005	MOTOR, gear 1/12 hp 32 volts dc 2000 rpm (consisting of)	1
		045 613	. COVER, brush	2
		080 282	. SPRING, brush	2
		*045 612	. BRUSH	2
35		057 357	BUSHING, snap 15/16 ID 1.12 mounting hole	2
36		010 144	CLAMP, nylon 7/16 dia	1
37		079 624	SCREW, cap - hex hd 3/8-16 x 2	1
38		602 213	WASHER, lock - split 3/8	2
39		010 910	WASHER, flat - SAE 3/8	3
40		075 150	WASHER, nylon - shielded 0.622 x 1 x 3/8	1
41		047 936	BASE	1
42		073 310	CASTER, rubber - swivel 3 in	2
43		000 527	BLANK, snap - in 7/8 hd 61/64 hd OD	2
44		605 441	TUBING, plastic 1/4 ID x 3/8 OD (order by ft)	1 ft
45		600 848	WIRE, motor - stranded 12 ga (order by ft)	16 ft
46		601 222	CLAMP, 50 amp	1
47		010 610	CONNECTOR, clamp - cable 1/2 inch	1
48		604 550	HOSE, neoprene No. 1 x 3/16 (order by ft)	3 ft
49		Figure D	WIRE DRIVE & GEARS (Pg 6) (consisting of)	1
50		079 633	. FITTING, hose - barbed nipple 3/16 TBG	1
51		079 619	WASHER, nylon 7/16 ID x 1 OD x 1/16	2
52		058 112	BUSHING, flanged - nylon 5/16 ID x 7/16 OD x 3/4	2
53		600 742	TERMINAL, ring - tongue 3/8 stud No. 3/0 wire	1

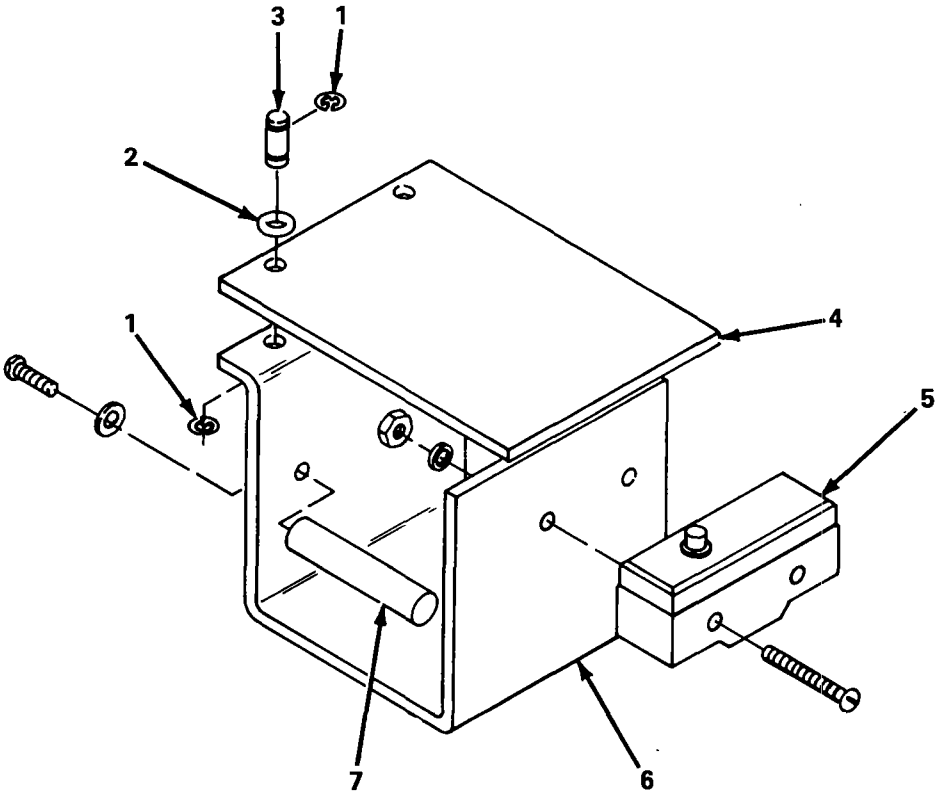
Item No.	Dia. Mkgs.	Part No.	Description	Quantity
Figure A			**Main Assembly (Cont'd.)**	
54		601 872	NUT, hex - full 3/8-16	1
55		079 635	INSULATOR, motor	1
56		019 602	KNOB, pointer - rheostat	1
57		*012 655	FUSE, miniature - glass 10 amp 250 volts	1
58		046 432	HOLDER, fuse	1
59			NAMEPLATE (order by model & serial number)	1

*Recommended Spare Parts.
+ Part No. includes all hardware for mounting (1) resistor.
BE SURE TO PROVIDE MODEL AND SERIAL NUMBERS WHEN ORDERING REPLACEMENT PARTS.

Dia. Mkgs.	Part No.	Description	Quantity
		Parts For Optional Equipment	
F1	*012 643	FUSE, miniature - glass slo-blo 1 amp	1
	046 432	HOLDER, fuse - panel mounting	1
GS1	003 538	VALVE, 2 way 1/4 IPS port 1/8 orifice (consisting of) or	1
	+003 539	. COIL, 115 volts ac (Control Co.)	1
GS1	080 841	VALVE, 2 way 1/4 IPS port 1/8 orifice (consisting of)	1
	+080 872	. COIL, 115 volts ac (Eemco)	1
PB50	047 681	SWITCH, magnetic - blowout	1
	045 434	CHASSIS, switch - remote inch control	1
	045 433	WRAPPER, remote - inch control	1
	045 429	CORD, interconnecting - switch/control	1
	010 476	BUSHING, strain - relief 5/8 x 0.570 hole	1
T1	045 468	TRANSFORMER, control	1
V	025 637	METER, volt dc 0-50 scale	1
	045 455	HOSE, gas 16 inch (consisting of)	1
	056 851	. FITTING, hose - brass barbed nipple 3/16 TBG	1
	010 606	. FITTING, hose - brass nut 5/8-18 RH	1
	604 550	. HOSE, neoprene No. 1 x 3/16 ID	1
	056 112	. FITTING, hose - brass ferrule .475 ID x 23/32	1
	045 481	CORD, power - control (consisting of)	1
	073 690	. CAP, straight - grounded 2P3W 15 amp 125 volts	1
	007 826	. CORD, No. 18 3/c (order by ft)	18 ft
	048 282	RECEPTACLE W/SOCKETS (consisting of)	1
	079 534	. TERMINAL, female 1 socket	4
	025 212	MOUNTING PAD, solenoid	1
	010 604	FITTING, hose - brass bushing 1/4 NPT x 5/8-18 RH	1
	602 958	FITTING, brass - barbed M 1/4 TBG x 1/4 NPT	1
	000 434	FITTING, gas	1
	057 357	BUSHING, snap 15/16 ID 1.12 mounting hole	1

*Recommended Spare Parts.
+ When ordering coils be sure to provide manufacturers name.
BE SURE TO PROVIDE MODEL AND SERIAL NUMBERS WHEN ORDERING REPLACEMENT PARTS.

Item No.	Dia. Mkgs.	Part No.	Description	Quantity
Figure B		**047 758**	**Switch, Magnetic - Blowout (Fig A Pg 2 Item 25)**	
1		058 968	RING, retainer - E	4
2		079 975	O-RING, 3/16 ID x 0.103	2
3		047 754	PIN, hinge	2
4		047 757	COVER, top - switch actuator	1
5	CR1	047 680	SWITCH, magnetic - blowout	1
6		047 756	BRACKET, mounting - switch	1
7		047 755	SUPPORT-CABLE	1



TA-045 404

Figure B - Switch, Magnetic - Blowout

BE SURE TO PROVIDE MODEL AND SERIAL NUMBERS WHEN ORDERING REPLACEMENT PARTS.

Item No.	Part No.	Description	Quantity

Figure C 056 416 Reel, Wire (Fig A Pg 2 Item 8)

1	604 051	NUT, wing 1/2-13	4
2	056 312	FINGER, reel	4
3	056 313	STUD, 1/2-13 x 7 inches	4
4	010 224	PIN, spring 3/16 x 1 inch	4
5	601 880	NUT, hex - jam 1/2-13	4
6	056 314	REEL	1
7	010 910	WASHER, flat - SAE 3/8	2
8	601 964	SCREW, cap - hex hd 3/8-16 x 3/4	1

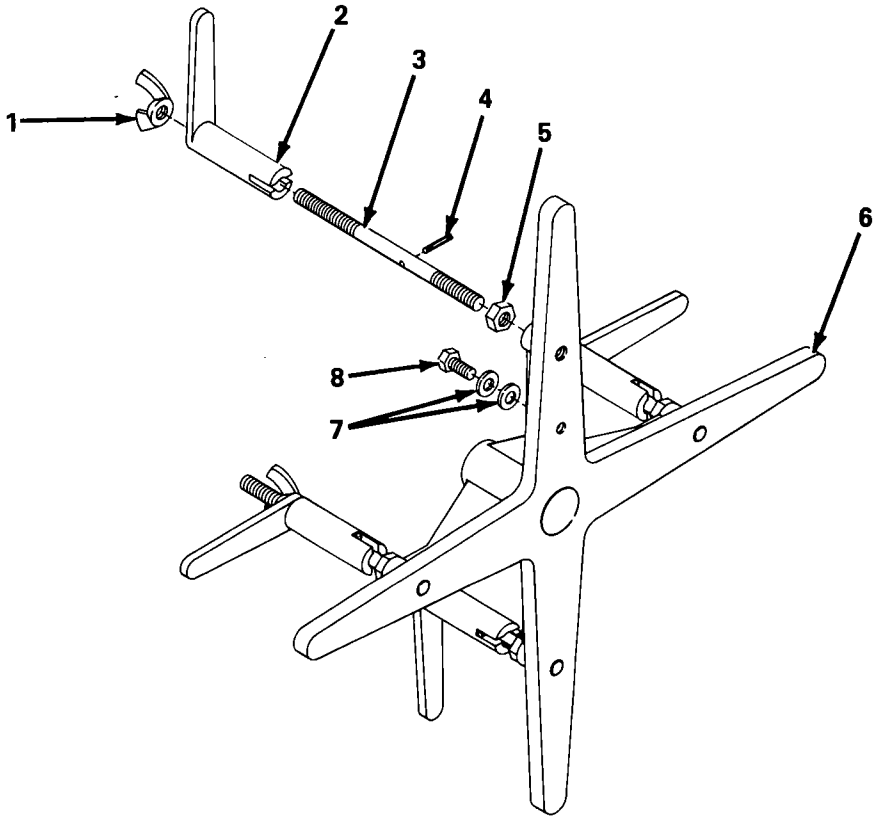


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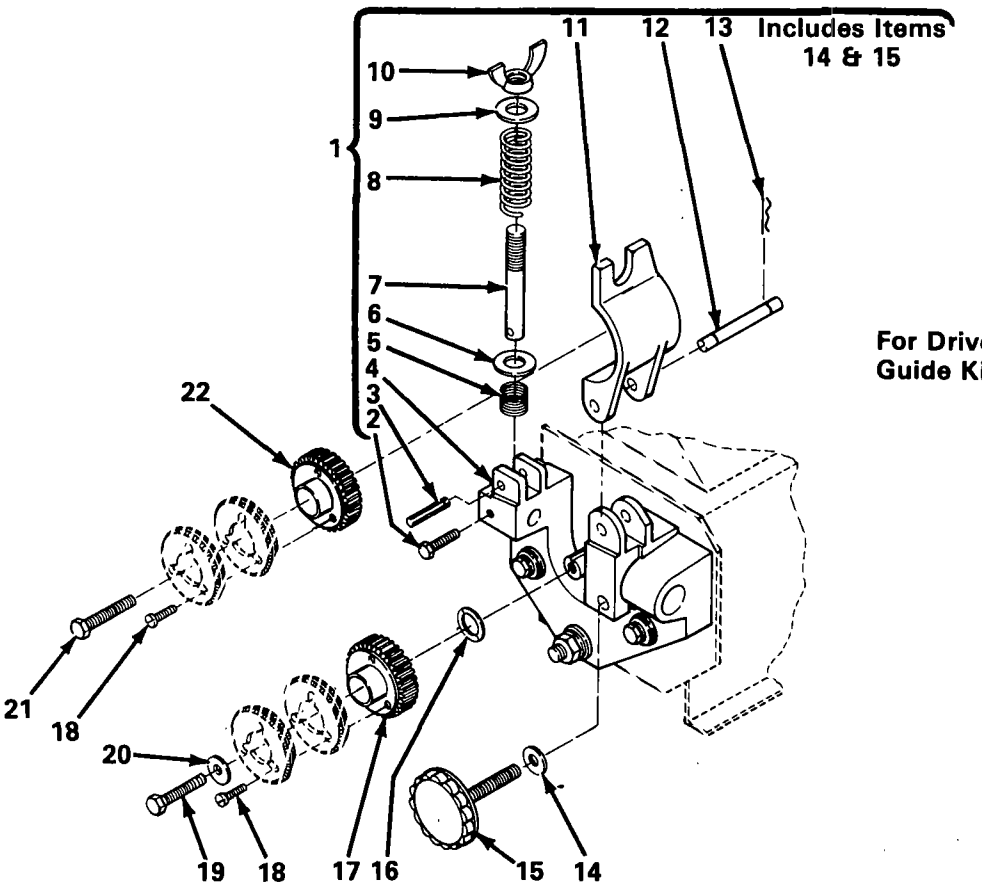
Figure C - Reel, Wire

BE SURE TO PROVIDE MODEL AND SERIAL NUMBERS WHEN ORDERING REPLACEMENT PARTS.

Item No.	Part No.	Description	Quantity
Figure D		**Wire Drive & Gears (Fig A Pg 2 Item 49)**	
1	045 396	WIRE DRIVE (consisting of)	1
2	601 925	. SCREW, cap - hex hd 1/4-20 x 1/2	1
3	010 224	. PIN, spring - compression 3/16-1	1
4	047 969	. HOUSING, adapter - gun/feeder	1
5	010 232	. SPRING, compression	1
6	602 243	. WASHER, flat 3/8	1
7	056 306	. FASTENER, pinned	1
8	010 231	. SPRING, compression	1
9	010 910	. WASHER, flat - SAE 3/8	1
10	604 590	. NUT, wing 3/8-16	1
11	079 669	. LEVER, mounting - pressure gear	1
12	079 634	. PIN, hinge	1
13	604 741	. PIN, cotter - hair 0.042 x 15/16	1
14	604 538	. WASHER, flat - SAE 5/16 (as req'd)	1
15	079 772	. KNOB	1
16	079 625	WASHER, spring 1/2 shakeproof (as req'd)	1
17	053 841	GEAR, spur - insulated w/key	1
18	079 626	SCREW, machine - fillister hd 10-32 x 7/8	6
19	000 418	SCREW, cap - hex hd 1/2-20 x 1/2 self locking	1
20	602 241	WASHER, flat - SAE 1/4	1
21	605 518	SCREW, cap - hex hd 1/4-20 x 1-1/4	1
22	053 842	GEAR, spur - insulated w/bearing	1



For Drive Roll And Wire Guide Kits See Page 7

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Figure D - Wire Drive & Gears

BE SURE TO PROVIDE MODEL AND SERIAL NUMBERS WHEN ORDERING REPLACEMENT PARTS.

NOTE

Base selection of drive rolls upon the following recommended usages:

1. U-Groove rolls for soft and soft shelled cored wires.
2. U-Cog rolls for extremely soft shelled wires (usually hard surfacing types).
3. Split V-Knurled rolls or hard shelled cored wires (self-shielding and CO_2 shielded types).
4. Drive roll types may be mixed to suit particular requirements (example: V-knurled roll in combination with U-groove).

Wire Diameter & Type			Kit No.*	Roll Drive		Inlet Wire Guide
Fraction	Decimal	Metric		Part No.	Type	
1/16"	.062	1.6MM	079 601	053 706	U-groove	056 195
5/64"	.079	2.0MM	079 602	053 704	U-groove	056 195
3/32"	.094	2.4MM	079 603	053 703	U-groove	056 196
7/64"	.110	2.8MM	079 604	053 705	U-groove	056 196
1/8"	.126	3.2MM	079 605	053 707	U-groove	056 197
1/16"	.062	1.6MM	079 609	056 771	V-knurled	056 195
5/64"	.079	2.0MM	079 610	056 773	V-knurled	056 195
3/32"	.094	2.4MM	079 611	056 774	V-knurled	056 196
7/64"	.110	2.8MM	079 612	056 775	V-knurled	056 196
1/8"	.126	3.2MM	079 613	056 776	V-knurled	056 197
1/16"	.062	1.6MM	079 614	053 708	U-cogged	056 195
5/64"	.079	2.0MM	079 615	053 710	U-cogged	056 195
3/32"	.094	2.4MM	079 616	053 709	U-cogged	056 196
7/64"	.110	2.8MM	079 617	053 711	U-cogged	056 196
1/8"	.126	3.2MM	079 618	053 712	U-cogged	056 197

Drive Roll & Wire Guide Kits

*When ordering replacement parts all kits listed with the exception of the V-KNURLED kits are one piece drive rolls. Two drive rolls are required for the one piece drive kits and four drive rolls for the split V-knurled kits.

See Section 3-6 in Owners Manual for identification of parts.

Part No.	Description
	Common Hardware
602 086	SCREW, machine - round hd 8-32 x 1
604 804	SCREW, sheet metal - hexagonal washer hd No. 8 x 3/8
602 109	SCREW, machine - round hd 10-24 x 1/2
601 925	SCREW, cap - hex hd 1/4-20 x 1/2
602 154	SCREW, self - tapping hexagonal washer hd 1/4-20 x 1/2
601 954	SCREW, cap - hex hd 1/4-20 x 3/4
605 518	SCREW, cap - hex hd 1/4-20 x 1-1/4
601 939	SCREW, cap - hex hd 1/4-28 x 1-1/2
079 620	SCREW, cap - flat hd 1/4-28 x 1/2
005 715	BOLT, carriage 1/4-20 x 1
602 200	WASHER, lock - split No. 8
602 203	WASHER, lock - split No. 10
602 241	WASHER, flat - SAE 1/4
602 207	WASHER, lock - split 1/4
601 860	NUT, hex - machine screw 8-32
601 861	NUT, hex - machine screw 10-24
601 862	NUT, hex - machine screw 10-32
601 865	NUT, hex - full 1/4-20

BE SURE TO PROVIDE MODEL AND SERIAL NUMBERS WHEN ORDERING REPLACEMENT PARTS.